REMARKS

Claims 27-57 are all the claims pending in the application.

The following remarks relate primarily to the office action dated April 11, 2005, incorporating a rejection stated in the office action dated July 29, 2004. Generally, the various obviousness rejections stated in these office actions cite Feldman '289, Elyasaf '579, and Feldman '924, alone or in various combinations to allegedly make the claimed invention unpatentable. Applicants respectfully traverses these rejections for the following reasons.

All of the pending claims relate to, and explicitly recite, an aerial imaging inspection method and apparatus. As can be clearly understood by an artisan in the art, no such system or method are disclosed or even remotely suggested by the cited references, or any combinations thereof. Rather, the cited references disclose the traditional bright-field and/or dark-field inspection systems. Bright-field and dark-field inspection system are very different in their concept and implementation than an aerial imaging system. To help in understanding the differences, Applicants provide in Appendix A, attached hereto, an article published in OE Magazine of the SPIE organization - a foremost authority in defect inspection in the semiconductor and other industries. Additionally, Applicants further provide the following explanation.

A bright field image is an image experience when one takes a conventional picture using a camera. In fact, using a digital camera having a CCD sensor is very much like the bright field imaging described in Elyasaf, using the light source 4 and the CCD sensor 20 (Figure 1). The bright field image generated in Feldman differs only in that the illumination is done from behind

the object pictured. Still, it is a traditional bright field image. That is, it is an image of the object itself, in this case an image of the reticle itself. As explained in the cited references, these bright-field images of the reticle themselves are used to examine for defects in the reticles.

Dark-field imaging takes a different form than bright-field imaging. Contrary to bright-field imaging, dark-field imaging does not seek to generate an image of the article, but rather only of abnormities on the article. One experiences dark-field imaging when one looks at a ray of sunshine or a beam of an illumination projector - suddenly dust particles are seen inside the ray, but none are seen outside the ray. The same is done in dark-field inspection. That is, either the illumination, or the detector, or both, are positioned such that the normal reflection of the illumination from the object will not reach the detector. Consequently, no image of the article is generated, as no reflected light reaches the detector. However, if an abnormality, such as a particle, is present on the article, the light will be reflected in all directions indiscriminately, and some of it will reach the detector. At this point, the detector will register a high intensity light and will emit a corresponding signal. In this manner, abnormalities on the article are detected without actually generating an image of the article.

Aerial imaging, on the other hand, is a very different concept. In aerial imaging, the system does not produce an image of the reticle and does not search abnormalities on the article itself. Rather, in aerial imaging the image that is generated is the image that would be produced if the reticle was to be used in an exposure system (such as a stepper) and the abnormalities that are searched are abnormalities that will appear in such an image, not abnormalities on the reticle itself. That is, while the bright-field and dark-field systems of the prior art study the physical

structure of the reticle itself, the claimed aerial imaging studies the image that would be produced from the reticle, not the reticle itself. See, e.g., paragraph bridging pages 3 and 4 of the subject Specification.

To implement this concept, the claimed optical system is constructed so as to simulate the exposure conditions of an exposure system. Then, rather than projecting the generated image onto a wafer (as would be done in an exposure system) the image is optically picked up (from the air - thus aerial imaging) and is projected onto the CCD sensor. In this manner, the image that is generated is not an image of the reticle, but rather an image that would have been projected onto a wafer under an exposure conditions of an exposure tool. Then, the system analyzes the aerial images for defect, i.e., not the image of the reticle, but the projected aerial image.

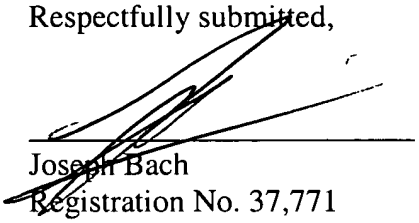
At least for these reasons, Applicants respectfully submit that none of the cited art, or any combination thereof, make any of the claims unpatentable.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

AMENDMENT UNDER 37 C.F.R. § 1.114(c)
U.S. Application No.: 09/851,779

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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